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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/805,643

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Patent Docketing

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EXAMINER

CHERY, DADY

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/805,643	<b>Applicant(s)</b> RAMAKRISHNAN ET AL.	
	<b>Examiner</b> DADY CHERY	<b>Art Unit</b> 2416	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21- 27 is/are allowed.
- 6) ☒ Claim(s) 1-5, 17,18,20 and 28 - 32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1- 5, and 28 32 rejected under 35 U.S.C. 102(e) as being anticipated by Cortez et al. ( US Patent 7,130,262, hereinafter Cortez)

The applied reference has a common assigne with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1 , 17,18,20 28 and 33, Cortez discloses a method (**Fig. 1**) for increasing the capability of a network topology model having a plurality of nodes (**16,18,20,21**) connected by existing links (**22,23,24,25**) to maintain service continuity in the presence of faults (**abstract, Col. 3, lines 53 – 56**), said method comprising:  
(a) adding new links to the network topology model to protect against single node

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failures (**Col. 5, lines 6 – 15, which recites request new path against failure**); and  
(b) adjusting link weights for the network topology model to reduce at least one of a cost of network operation, and an imbalance in link utilizations(**Col. 5, lines 20 -42, which recites the Dijkstra algorithm adjust the weight value of the path**).

Regarding claims 2 and 29, Cortez discloses a method for increasing the capability of a network topology model as defined in Claim 1, wherein said adjusting link weights in step (b) is performed to reduce said imbalance in link utilizations without deteriorating said cost of network operation (**Col. 5, lines 20 -42**).

Regarding claims 3 and 30, Cortez discloses a method for increasing the capability of a network topology model as defined in Claim 1, wherein said adjusting link weights in step (b) is performed to reduce said cost of network operation without increasing said imbalance in link utilizations(**Col. 5, lines 20 -42**).

Regarding claims 4 and 31, Cortez discloses a method for increasing the capability of a network topology model as defined in Claim 1, wherein said adjusting link weights in step (b) is performed to reduce said cost of network operation without increasing said imbalance in link utilizations while keeping the utilization for each link below a specific threshold (**Col. 5, lines 20 - 60**).

Regarding claims 5 and 32, Cortez discloses a method for increasing the capability of a network topology model as defined in Claim 1, further comprising the step of:

(c)adding links to the network topology model to reduce the cost of network operation (**Col. 5, lines 20 - 60**).

Regarding claim 17, Cortez discloses a method (**Fig. 1**) for adding new links to a network topology model having a plurality of nodes (**16,18,20,21**) connected by existing links (**22,23,24,25**) to achieve protection against single node failures (**abstract, Col. 3, lines 53 – 56**), for Open Shortest Path First (OSPF) and Multiprotocol Label Switching (MPLS) (**Col. 1, lines 15 -24**) based local recovery, said method comprising the steps of:

- (a) failing one of the plurality of nodes in the network topology (**Col. 4, lines 19 – 21, which recites network failure**);
- (b) calculating a first number of disconnected node pairs(**Col. 4, lines 54 – 56, link failure between a node pairs**);
- (c) selecting a pair of nodes which are neighbors to the failed node (**Col. 5, lines 56 – 59, which recites nodes adjacent to the failure**);
- (d) adding a new link between the pair of nodes (**Col. 4, lines 63 - 65, which recites provision one or more new circuits**);
- (e) calculating a second number of disconnected node pairs (**Col. 4, lines 54 – 56, link failure between a node pairs**);
- (f) retaining the new link and setting the first number equal to the second number when the second number is less than the first number(**Col. 4, lines 65- col. 5, lines 3 and col. 5, lines and Col. 5, lines 43 -47**);
- (g) repeating steps (c) through (f) for randomly selected combination of pair of nodes until the first number equals zero;(h) repeating steps (a) through (g) for each of the plurality of nodes in the network topology as modified by the addition of the retained

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links;(i)removing one of the plurality of retained links in the modified network topology;(j)restoring the removed link when the removal causes any node pair to become disconnected for any single node failure; and (k) repeating steps (i) through (k) for each of the plurality of retained new links in the modified network topology ( **Fig.3C, Col. 5, lines 7 – 43, where these steps are executed when the Dijkstra algorithm is running**).

Regarding claim 18, Cortez discloses a method (**Fig. 1**) for adjusting link weights for a network topology model having a plurality of nodes (**16,18,20,21**) connected by links (**22,23,24,25**) to reduce the cost of network operation, said method comprising the steps of:

- (a) unmarking each link in the network topology(**inherent feature of Dijkstra algorithm unmark unvisited link**);
- (b) calculating a network cost for operating the current network topology based upon a link cost associated with each link(**Col. 4, lines 19 – 23, which recites use link weight for calculation** );
- (c) incrementing the weight of the unmarked link in the current network topology having the maximum link cost to modify the network topology (**Col. 5, lines 21 -42, which recites in order to determine the optimal service path increase the weight of the link, unmark link is inherent to Dijkstra for making difference between visited and unvisited links**) ;
- (d) calculating a network cost for operating the modified network topology(**Col. 4, lines 19 – 23, which recites use link weight for calculation** );

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(e) restoring the weight and marking the link having the maximum link cost when the network cost for operating the modified network topology is greater than or equal to the network cost for operating the current network topology(**Col. 2, lines 60 - 65 , col. 4, lines 9 – 15 and col. 5, lines 44 - 67, which recites the Dijkstra algorithm uses the maximum link cost for restoring the optimal path ; and**

(f) repeating steps (b) through (e) until each of the links in the network topology is marked (**inherent feature of Dijkstra algorithm see col. 1, lines 49 – col. 2, lines 11**).

Regarding claim 20, Cortez discloses a method (**fig. 1**) for adding links to a network topology model having a plurality of nodes (**16,18,20,21**) connected by existing links (**22,23,24,25**) to reduce the cost of network operation, said method comprising the steps of:

(a) selecting a maximum number of potential links to be added to the network topology (**Col. 3, lines 40- 45, which recites number of path choice**);

(b) selecting a maximum number of new links to be added to the network topology( **Col. 4, lines 63 – 67, which recites adding new circuits**);

(c) finding a potential link that when added to the current network topology will result in a maximum reduction in the cost of network operation( **Col. 4, lines 34 – 45, where the maximum available capacity substantially include maximum reduction of cost**);

(d) adding the potential link to the current network topology(**Col. 4, lines 67 – Col. 5, lines 4, which recites setup the new link**);

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(e) repeating steps (c) and (d) until the maximum number of potential links have been added to the current network topology (**inherent feature of Dijkstra algorithm see col. 1, lines 49 – col. 2, lines 11**).

(f) finding the potential link that when removed from the current network topology will result in the lowest cost of network operation( **Col. 4, lines 34 – 45, where the maximum available capacity substantially include maximum reduction of cost**);(g) removing the potential link from the current network topology (**Col. 5, lines 7 – 15, which recites eliminate non suitable links**);

(h) repeating steps (f) and (g) until the maximum number of potential links is reduced to the maximum number of new links to be added to the network topology (**inherent feature of Dijkstra algorithm see col. 1, lines 49 – col. 2, lines 11**).

#### ***Allowable Subject Matter***

3. Claims 6- 16,and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claims 21 – 27are allowed.

#### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Johri (US Patent 7,295,510).

7. Analysis and design of survivable telecommunications networks (by J.J. Shi and J.P. Fonseca 5 October 1997).



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to DADY CHERY whose telephone number is (571)270-1207. The examiner can normally be reached on Monday - Thursday 8 am - 4 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dady Chery/  
Examiner, Art Unit 2416

/Ricky Ngo/  
Supervisory Patent Examiner, Art  
Unit 2416